The '972 patent is different from the claimed system, and fails to suggests all its critical features. The '972 patent describes and claims a system that comprises a pressurizing assembly, a measuring probe and other components. The prior art system, however, differs from the claimed system. Applicant's system contains critical features described in claim 24 that set it apart from the art of record. Moreover, nowhere does the '972 patent suggests the critical features of the claimed system.

Claims 24, 25 and 30 are directed to a system that the applicant believes to be fully patentable over the art of record. In addition, the applicant has added features previously contained in claim 26, which the examiner himself has found allowable.

In view of the above the above rejection is believed to be moot, and the examiner is invited to withdraw it.

THE SECOND ANTICIPATION REJECTION

Claims 24, 25 and 32-35 stand rejected under 35USC1.102(e), allegedly as being anticipated by US Patent 6,587,704 (the '704 patent). This rejection is also traversed.

The '704 patent to Fine et al, including one of the present inventors, is different from the claimed system, and fails to suggest all the present critical features. The '704 patent discloses a system that has similar, although critically different, components. Applicant's system of claim 24 contains critical features that set it apart from the prior patent. Moreover, nowhere does the '704 patent suggests the critical features of the claimed system.

Claims 24, 25 and 32-35 are directed to a system that is fully patentable over the art of record. In addition, the applicant has added features previously contained in claim 26, which the examiner himself has found allowable.

In view of the above amendments and remarks, the above rejection is believed to be moot, and the examiner is invited to withdraw it.

THE THIRD ANTICIPATION REJECTION

Claims 1, 3 and 18 stand rejected under 35USC1.102(b), allegedly as being anticipated by US Patent 5,582,179 (the '179 patent) to Shimizu. This rejection is traversed.

The '179 patent is different from the claimed non-invasive method for blood testing, and fails to suggest all the critical features of the method. The '179 patent relates to a method that has similar, although critically different, steps. Applicant's method of claim 1 contains critical

features that set it apart from the method of the '179 patent. IN addition, the '179 patent fails to suggest the critical features of the claimed method.

Claims 1, 3 and 18 are directed to a detection method that is fully patentable over the method of the '179 patent. In addition, the applicant has added features to claim1's steps previously contained in claim 8, which was found allowable by the examiner. In view of the above this rejection is believed to be moot, and the examiner is invited to withdraw it.

THE FOURTH ANTICIPATION REJECTION

Claims 1-7, 9, 17-18, 24-25 and 29-31 stand rejected under 35USC1.102(b), allegedly as being anticipated by US Patent 5,642,734 to Ruben (the '734 patent). This rejection is traversed as well.

The '734 patent differs from the claimed testing method and system, and fails to suggest all their critical features. The '734 patent describes a method and system that have similar, although critically different, steps and components. Applicant's claimed method and system contain critical features that set them apart from those of the '734 patent. In fact, nowhere does the '734 patent suggests the critical features of the claimed method and system.

The applicant believes that claims 1-7, 9, 17-18, 24-25 and 29-31 are directed to a method and system that are fully patentable. In addition, the applicant has added features previously contained in claim 8, and additionally or in the alternative of claims 10 and 11, all of which the examiner found allowable. This rejection is believed to be moot, and the examiner is invited to withdraw it.

THE FIFTH ANTICIPATION REJECTION

Claims 1, 3, and 18-23 stand rejected under 35USC1.102(e), allegedly as being anticipated by US Patent 6,285,894 (the '894 patent). This rejection is also emphatically traversed.

The '894 patent differs from the claimed system, and fails to suggest all the present critical features. The '894 patent discloses a method that although having similar, has critically different, steps. Applicant's method of claim 1 contains critical requirements setting it apart from the method employed by the prior patent. If anything, the '894 patent could be said to teach away from the critical claimed features. Nowhere does the '894 patent suggest the critical features of the claimed method. Claims 1, 3, and 18-23 are directed to a method that the applicant believes is fully patentable over the art of record. In addition, the applicant has added features previously

contained in claim 8, and additional or alternative features of claims 10 and 11, all of which were found patentable by the examiner.

In view of the above the rejection over the '984 patent is believed to be moot, and the examiner is invited to withdraw it.

THE OBVIOUSNESS REJECTION

Claims 24-25, 30-31 and 36 stand rejected under 35USC1.103(a), allegedly as being unpatentable over US Patent 5,827,181 (the '181 patent) in view of US Patent 6,039,884 (the '884 patent), and further in view of US Patent 5,111,817 (the '817 patent). This rejection is emphatically traversed.

The '181 patent is different from the claimed invention, and fails to describe or suggest all elements of the claimed system. Nowhere does the '181 patent alone or in combination with the '884 patent and/or the '817 patent describe or suggest the critical features of the claimed system. The applicant believes claim 24 to be fully patentable in view of its critical components. Moreover, claim 24 now has incorporated into its language the features of claims 26, already found patentable by the examiner. A person skilled in the art would not consider using the disclosures of the '884 and/or '817 patents to cure the deficiencies of the '181 patent. If anything the art teaches away from so doing. In view thereof, the examiner is invited to withdraw this rejection.

THE OBJECTED TO CLAIMS

Claims 8, 10, 11-16 and 26-28 stand objected to, as being dependent on a rejected claim.

The indication by the examiner that claims 8, 10, 11-16 and 26-28 are solely objected to because they depend from a rejected claim, is acknowledged with thanks.

The contents of come of these claims have been incorporated into the independent claims from which they depend, and should be allowable as well.

THE NEW CLAIMS

Newly added claims 37-46 are directed to a blood detection system provided with features already found allowable by the examiner. The contents of dependant claims 38-46 corresponds to that of original claims 27 and 29-36 and is, therefore, fully supported by the specification as filed, and by the original claims..

THE AMENDMENTS TO THE CLAIMS

The amendments to the claims are fully supported by the specification as filed, and by the original claims. No objectionable new matter is believed to have been introduced by the present amendments. A sheet with a clean set of claime is attached for the examiner's conveninence.

Should there remain any unresolved issues, the examiner is requested to contact the applicant's attorney to address them by means of an interview. The applicant truly believes the present claims to be in full condition for allowance. Early notice to that effect is earnestly solicited.

Respectfully submitted,
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CLAIMS:

1. (Currently Amended) A non-invasive method for use in determining at least one desired characteristic of blood of a patient, the method comprising:

(a) creating a condition of artificial blood kinetics at a measurement location in a patient's blood perfused fleshy medium and maintaining this condition for a certain time period;

(b) applying an external electromagnetic field to the measurement location;

(c) detecting a time response of the medium from at least a portion of the measurement location to said external electromagnetic field, the response including at least one of an acoustic response to illuminating incident light having a wavelength in a range where the scattering properties of blood are sensitive to light radiation or an impedance of the portion of the medium; ~~and~~

(d) generating measured data indicative of time evolutions of the response of the medium over at least a part of said certain time period;

(e) analyzing said measured data for determining at least one characteristic parameter derived from said time response of the medium, the characteristic parameter including at least one of an actual value of the time response at a certain moment, during said certain time period, chosen when the response attains its near asymptotic magnitude; and a parametric slope defined as a ratio between a first function depending on a time response of the medium corresponding to a first frequency of the external electromagnetic field or a second function depending on the time response of the medium corresponding to a second frequency;

(f) providing predetermined reference data sensitive to patient individuality and indicative of the desired blood characteristic obtained by other independent method as a function of said at least one characteristic parameter; and

(g) utilizing the determined characteristic parameter derived from said time response of the medium and said predetermined reference data for obtaining a value of the desired blood characteristic.

~~wherein the response to said external electromagnetic field includes at least one of the followingan acoustic response to illuminating incident light having a wavelength in a range where the scattering properties of blood are sensitive to light radiation, and an impedance of the portion of the medium.~~

2. (Canceled)

3. (Original) The method of claim 1 further comprising:

altering said condition of the artificial blood kinetics at the measurement location over a predetermined time interval within said certain time period so as to modulate properties of the blood affecting said time response.

4. (Canceled)

5. (Currently Amended) The method of claim ~~2~~1, wherein said reference data is a calibration curve defining a dependence of the characteristic parameter on the desired blood characteristic.

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Currently Amended) The method of claim ~~11~~1, wherein said first and second functions are logarithmic functions of the response corresponding to the first and second frequencies, respectively.

14. (Canceled)

15. (Currently Amended) The method of claim ~~11~~1, wherein said first and second functions are a time rate of the changes of the response corresponding to the first and second frequencies, respectively.

16. (Canceled)

17. (Original) The method of claim 1 wherein said creating of the condition of artificial kinetics includes applying primary over-systolic pressure to a certain location at the medium with a normal blood flow upstream of the measurement location so as to achieve a state of temporary blood flow cessation in the medium at the measurement location.

18. (Original) The method of claim 1 wherein said certain time period is insufficient for irreversible changes in the fleshy medium.

19. (Original) The method of claim 3 wherein said altering of the condition of artificial blood kinetics includes applying a perturbation to the medium by at least one secondary pressure pulse of a predetermined value over said predetermined time interval.

20. (Original) The method of claim 19 wherein the predetermined value of the secondary pressure is in the range of about 0-300 mmHg.

21. (Original) The method of claim 3 wherein said altering of the condition of artificial blood kinetics includes applying a perturbation to the medium by secondary pressure of a predetermined cyclic pattern over said predetermined time interval.

22. (Original) The method of claim 21 wherein said predetermined cyclic pattern is in the form of secondary pressure pulses having amplitudes in the range of about 0-300 mmHg.

23. (Original) The method of claim 1 wherein said at least one desired characteristic of the patient's blood is a concentration of glucose therein.

24. (Currently Amended) A system for non-invasive determination of at least one desired characteristic of blood of a patient, the system comprising:

(i) a pressurizing assembly arranged for creating a condition of artificial blood kinetics at a measurement location in a patient's blood perfused fleshy medium and at least maintaining this condition for a certain time period, the pressurizing assembly comprising a primary occlusion cuff for applying a primary over-systolic pressure to the fleshy medium at a primary pressure location, and a secondary occlusion cuff for applying a secondary pressure to the flesh medium at a secondary pressure location, thereby altering the condition of the artificial blood kinetics at said secondary pressure location over a predetermined time interval within said certain time period so as to modulate properties of the blood affecting said time response;

(ii) a measuring probe including

a source of an external electromagnetic field configured for applying said external electromagnetic field to said measurement location, and

a detecting module configured for detecting a time response of the medium from at least a portion of the measurement location to said external electromagnetic field; and

(iii) a control unit electrically coupled to said pressurizing assembly, said control unit including:

a memory for storing reference data sensitive to patient individuality and indicative of the desired blood characteristic as a function of a characteristic parameter derived from said time response; and

a data acquisition and processing utility coupled to the detecting module for receiving and analyzing measured data therefrom and configured to utilize the reference data and determine said at least one desired blood characteristic.

25. (Currently Amended) The system of claim ~~24~~37, wherein said pressurizing assembly includes a primary occlusion cuff for applying a primary over-systolic pressure to the fleshy medium at a primary pressure location.

26. (Original) The system of claim 25 wherein said pressurizing assembly further includes a secondary occlusion cuff for applying a secondary pressure to the flesh medium at a secondary pressure location, thereby altering said condition of the artificial blood kinetics at said secondary pressure location over a predetermined time interval within said certain time period so as to modulate properties of the blood affecting said time response.

27. (Currently Amended) The system of claim ~~26~~24, wherein said primary pressure location is selected upstream of the secondary pressure location with respect to the normal blood flow direction in the medium, said secondary pressure location being in the vicinity of the measurement location.

28. (Original) The system of claim 24 wherein said measuring probe includes a photo-acoustic system, where said source of the external electromagnetic field being configured for generating a light beam in the wavelength range where the scattering or absorbing properties of the patients blood are sensitive to provide an acoustic response, and where said detecting module is an acoustic detector.

29. (Original) The system of claim 24 wherein said measuring probe includes a system for measuring impedance of at least a portion of the medium at the measurement location.

30. (Original) The system of claim 24 wherein said reference data is a calibration curve defining a dependence of the characteristic parameter on the desired blood characteristic.

31. (Original) The system of claim 30 wherein said at least one characteristic parameter is an actual value of the time response at a certain moment during said certain time period.

32. (Original) The system of claim 31 wherein said certain moment is chosen when the response attains its near asymptotic magnitude.

33. (Original) The system of claim 24 wherein said characteristic parameter is a parametric slope defined as a ratio between a first function depending on a time response of the medium corresponding to a first frequency of the external electromagnetic field and a second function depending on the time response of the medium corresponding to a second frequency.

34. (Original) The system of claim 33 wherein said first and second functions are logarithmic functions of the response corresponding to the first and second frequencies, respectively.

35. (Original) The system of claim 33 wherein said first and second functions are a time rate of the changes of the response corresponding to the first and second frequencies, respectively.

36. (Original) The system of claim 24 wherein said at least one desired characteristic of the patient's blood is a concentration of glucose therein.

37. (New) A system for non-invasive determination of at least one desired characteristic of blood of a patient, the system comprising:

(i) a pressurizing assembly arranged for creating a condition of artificial blood kinetics at a measurement location in a patient's blood perfused fleshy medium and at least maintaining this condition for a certain time period;

(ii) a measuring probe comprising

a source of an external electromagnetic field configured for applying said external electromagnetic field to said measurement location, said source of the external electromagnetic field being configured for generating a light beam in the wavelength range where the scattering or absorbing properties of the patients blood are sensitive to provide an acoustic response, and

a detecting module comprising an acoustic detector configured for detecting a time response of the medium from at least a portion of the measurement location to said external electromagnetic field; and

(iii) a control unit electrically coupled to said pressurizing assembly, said control unit comprising

a memory for storing reference data sensitive to patient individuality and indicative of the desired blood characteristic as a function of a characteristic parameter derived from said time response; and

a data acquisition and processing utility coupled to the detecting module for receiving and analyzing measured data therefrom and configured to utilize the reference data and determine said at least one desired blood characteristic.

38. (New) The system of claim 26 wherein said primary pressure location is selected upstream of the secondary pressure location with respect to the normal blood flow direction in the medium, said secondary pressure location being in the vicinity of the measurement location.

39. (New) The system of claim 37 wherein said measuring probe includes a system for measuring impedance of at least a portion of the medium at the measurement location.

40. (New) The system of claim 37 wherein said reference data is a calibration curve defining a dependence of the characteristic parameter on the desired blood characteristic.

41. (New) The system of claim 40 wherein said at least one characteristic parameter is an actual value of the time response at a certain moment during said certain time period.

42. (New) The system of claim 41 wherein said certain moment is chosen when the response attains its near asymptotic magnitude.

43. (New) The system of claim 37 wherein said characteristic parameter is a parametric slope defined as a ratio between a first function depending on a time response of the medium corresponding to a first frequency of the external electromagnetic field and a second function depending on the time response of the medium corresponding to a second frequency.

44. (New) The system of claim 43 wherein said first and second functions are logarithmic functions of the response corresponding to the first and second frequencies, respectively.

45. (New) The system of claim 43 wherein said first and second functions are a time rate of the changes of the response corresponding to the first and second frequencies, respectively.

46. (New) The system of claim 37 wherein said at least one desired characteristic of the patient's blood is a concentration of glucose therein.